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ABSTRACT

This report analyzes, via site visitations and telephone interviews, a sample of 23 well-established training programs which serve young hearing-impaired children, for compliance with Public Law 99-457. The programs represent 16 states and the District of Columbia, with several of the programs being recommended for the study by federal government officials. The study found that all states and programs complied with the specifications of Public Law 99-457. At considerable expense, these programs had launched parent/infant components, increased staff development, added space, and developed interagency networks. Programs reported more minority and multicultural students than reported in the past. Teacher, administrator, and staff personnel lacked proportional ethnic representation relative to student composition. All programs employed at least one speech/language pathologist and one audiologist, and contained aural rehabilitation and assistive device units. There was a growing use of American Sign Language as the instructional language mode for communication. Hearing-impaired students were often classified as multiply handicapped because of concomitant language and other limitations. (18 references) (JDD)

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TITLE PAGE

NEW AND INNOVATIVE EDUCATIONAL DIRECTIONS FOR YOUNG HEARING IMPAIRED CHILDREN IN THE UNITED STATES

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ABSTRACT

This investigation explored the educational and service modifications for infants, toddlers and their families relative to P.L.99-457 of twenty-three programs for the hearing impaired. The law established a Handicapped Infants and Toddlers Program (0-3 years) and a Preschool Grant Program (3-5 years). Infant/parent and preschool programs were assessed relative to: (1)early identification and intervention of *at-risk* hearing impaired infants, (2) lead agencies, central directory resources for services, (3) individual family service plan (IFSP) with the case manager, (4) multidisciplinary assessment of infant/family needs and (5) staff development retraining. .

Program demographics were also reviewed for their: trend toward AL, student enrollment with mild-moderate hearing thresholds with language and developmental delays, cochlear implanted students, computer technology, student/staff/faculty/administrator ratios, criteria to classify students as multiply handicapped, multicultural/minority/handicapped/staff ratios.

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NEW AND INNOVATIVE EDUCATIONAL DIRECTIONS FOR YOUNG HEARING IMPAIRED CHILDREN IN THE UNITED STATES

E. Harris Nober & Linda M. Nober

Introduction:

The need for significant changes in early intervention and pre-school education of handicapped infants, toddlers and their families resulted in the passage of P.L. 99-457, the Education of the Handicapped Act Amendments of 1986, which became effective September 1, 1991 (Kaiser and McWhorter, 1990, Sass-Lehrer and Bodner-Johnson, 1989, Houle and Hamilton, 1991). This report analyzes and summarizes a sample of premier training programs which serve hearing impaired children for compliance with the law.

Background:

Sweeping changes occurred in early intervention strategies and the educational management of hearing impaired infants and toddlers following the passage of the Education of the Handicapped Act (EHA) in 1973 (P. L. 94-142). This legislation precipitated the need to expand, further develop and improve the educational services to all handicapped children.

The amendments in P.L. 99-457 included provisions for infants, toddlers, preschool children and their families. The provisions required significant preparation and efforts by agencies serving hearing impaired children. One new segment of the law, the "Handicapped Infants and Toddlers Program" (outlined in Part H), focused on the birth through two year age group, while another new segment, the "Preschool Grant Program" targeted the 3-5 age group. These groups needed different services and modifications of

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established services. Coordination and transition from health care agencies to educational institutions had to be developed. These institutional and program accommodations to P.L. 99-457 were the focus of this project.

Historically, federal laws dealing with educational policy have strong associations with the deaf. Parents of hearing impaired children have successfully lobbied for numerous landmark legislative mandates including public-supported day and residential classes, stipends to train special education teachers, media and technological support services (Burrello and Sage, 1979).

Components of P.L. 99-457:

To be in compliance with P.L. 99-457, states implemented the amendments by September 1, 1991 (Kaiser and Mc Whorter, 1990, Twelfth Annual Report to Congress, 1990; USOE, 1990). Hence, each state governor established an "Interagency Coordinating Council" to implement 14 points of the legislation:

1. define "developmentally delayed".
2. establish a service timetable
3. provide multidisciplinary assessment of child/family needs.
4. prepare an Individual Family Service Plan (IFSP) with case manager.
5. develop "Child Find" and functional referral systems.
6. promulgate a "public awareness" program.
7. develop a "Central Directory" of resources, services, experts and programs.
8. develop a "Comprehensive Service Personnel Development" (CSPD) plan.
9. activate a "Lead Agency" and. develop procedures for contracting with local providers.
10. develop procedures for contracting with local providers.

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11. establish fiscal payment timetable.
12. provide "Due Process" protection.
13. establish personnel standards and requirements programs.

P.L. 99-457 provides financial support for "at-risk" registers and other early identification systems via the Handicapped Infants and Toddlers Program (birth-two years). Ideally, hearing impaired infants should be identified during the first few months rather than between 2.0-2.5 years, the current national age period when hearing impairment is identified (Gerber, 1990, Simmons-Martin and Glover-Rossi, 1990). The literature abounds with evidence of significant long-standing benefits of early identification to maturation and development (Widerstrom, Mowder and Sandall, 1991, Fallen, 1978, Deiner, 1983). Early identification provisions enable more efficient family and professional coordination via the "Case Manager" and subsequently an early Individual Family Service Plan for any infant with developmental delay in physical and mental maturity, cognition and speech and language development. (Sass-Lehrer and Bodner-Johnson, 1989, Houle and Hamilton, 1991).

P.L. 99-457 also includes the "Preschool Grant Program" for children 3 through 5 years. Categorical labels are not required to enable and encourage ongoing diagnostic exploration. Funds are available for family training programs, to access health care and for other social services. This provision includes environmentally abused and deprived children and their families. This landmark legislation mandates services for very young children. Programs serving hearing impaired children provide leadership models for programs serving other types of handicapped children.

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Design:

Twenty-three well established programs for the hearing impaired, representing 16 states and the District of Columbia, were reviewed to determine their approach to P.L. 99-457. Several programs, were recommended by officials of the United States Department of Education (USOE), Office of Special Education and Rehabilitation Services (OSERS) (Report to Congress, 1990, Schildroth and Hotto, 1990).

The states in this study included Arizona, California, Connecticut, Florida, Maryland, Massachusetts, Missouri, New Hampshire, New Jersey, New Mexico, New York, Pennsylvania, Rhode Island, Texas, Virginia, Utah and the District of Columbia. Collectively, these states have their lead agencies for the early intervention programs located in education, health, developmental disabilities and human resources agencies.

On-site visitation interviews were conducted at 80% of the programs. The remaining 20% were assessed via telephone conferences. In most instances, the interviewee was the headmaster, director, principal of the program, or a designated individual from the early childhood program. Data collection was structured using a four page questionnaire with parameters based on the American Annals of the Deaf (AAD) 1991 Annual Survey Yearbook such as:

-program classification, orientation and philosophy
-student enrollment data and information
-staff, professional faculty and consortium arrangements
-preparation for P.L. 99-457 and its regulations
-early identification methodology protocols and entrance admission criteria
-early intervention services and programs
-aural rehabilitation, speech and language development programs
-vocational training and occupational orientation components
-technology, computers and assistive devices

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The questionnaire was pilot tested and several items were revised. For example, the 1991 AAD yearbook used education age levels, 0-2, 3-4, 5, 6-21 year as categories for infant, toddler, kindergarten and grade school but these groups did not match the age groupings of most programs and therefore were modified. Several other issues required modification, (i.e. supervision vs. administration, curriculum vs. methodology) and were resolved to protect data consistency.

Programs defined their parameters differently and the use of standard statistical analyses was ill advised. Programs were not selected in a random fashion but rather by size, geographic location, research and other exemplary features. Collectively, the programs represented: (a) clinics, (b) LEA programs and (c) schools for the deaf, reflecting a wide diversity of treatment strategies. Table 1 identifies the states, lead agencies and administrative structure of educational programs which serve the hearing impaired in this investigation.

Table I

States Lead Agencies Re: P. L.99-457

Education Council
Connecticut
Florida
Missouri
Texas
Rhode Island
Vermont

Department of Health
Massachusetts
New Mexico
New York
Utah

Developmental Disabilities Agency
Arizona
California

Human Resources Agency
District of Columbia
Pennsylvania

Results:

1. Program classification, orientation and philosophy:

About 60% of the programs were listed as public and 41% as private. (Table 2 summarizes the specific demographic results.) The private sector relied on tuition from parents who were able to pay, but most private programs received supplemental funds from the state or LEAs. About 13% of the programs recruited students from both the private and public sectors. Nearly all programs indicated their teachers, specialists and the program per se had the required state and professional certification.

The "types of classes" parameter was a difficult category to classify because respondents varied widely in their definitions of programs. Programs were designated: self-contained, Total Communication, integrated, oral/aural or manual. Since many interviewees were unable to classify their programs within one category, it was difficult to calculate percentage values. All programs had an aural rehabilitation component, 70% designated themselves as Total Communication (but definitions varied) and 53% used some sign language for communication.

Programs that did not have infant/parent components prior to the enactment of P.L. 99-457, initiated them with a focus on home visitations or evening classes to accommodate single working parents and fathers. Seventy-eight percent of the programs were multi-district and 57% had collaborative arrangements with a wide variety of interagency facilities. Seventy-four percent conducted satellite programs in different sectors of the state. This arrangement was more common in the Southwestern states with a broad geographic population distribution and was less prevalent in the densely populated Northeast with a plethora of programs

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2. Student data and information:

Perhaps the most difficult parameter to assess was student enrollment per program because of consortium, satellite and other enrollment arrangements. The data were also confounded by the tenuous attempt to connote a universal definition of deafness, hearing impaired, etc. Despite the variances, student enrollments ranged from 46-462. The mean was 213 and the medium was about 350; half of the programs enrolled between 100-300 students. The total enrollment of the 23 reviewed programs was 4,896 students.

Class size averaged 6 students/instructor with a range from 1-8 students/class, including an aide. All programs held day classes and 41% also had residential students. Forty-eight percent listed an age range of birth to 22 years, one clinical program serviced the birth to 99+ years and about 30% serviced children from 3-4 years to 22 years. The sex ratio was equal in most instances with males slightly exceeded females on occasions (Table 2).

Interviewees were reluctant to define or count their multicultural, minority and multihandicapped staff and students. All programs had multicultural students and several programs had *only* multicultural and/or minority students. While 52% of the programs identified their multihandicapped students (e.g. another handicap besides hearing impairment), the prevalence was estimated with caution. Several people equivocated over how to list language and speech deficits or learning disabilities. Contrary to the views of some program directors, in this study, a congenitally deaf child with a language deficiency was not tallied as a "multiply handicapped" child.

The AAD age classifications, 0-2, 3-4, 5, 6-21 years, designating *i*nfant, *t*oddler, *k*indergarten and *g*rade school, was not followed faithfully by most programs. The delineations (used by 94%) were:

0-2 years (nursery/infant),
3-5 years (preschool),
6-12 years (elementary or lower),
13-22 years (Jr. High/High or upper)

All programs offered some form of early intervention with parent/family guidance counseling conducted in the home, at the program facility or at both sites. Meetings were often scheduled for evenings to accommodate working and single parents. Parent training often included teaching a sign language system via continuing education at cooperating institutions or crafting a "mini clinician" program for the parents. One program opted to work without the parents during the training sessions with the infant.

3. Staff, faculty, administration and other agency input:

The ratio of classroom teachers to hearing impaired students was slightly less than 1:5 while the classroom aide-to-student ratio was 1:18. All programs had at least one speech/language clinician with a range from 1-20 per program, mode of 2 and a mean of 5 speech/language clinicians per program. The program with 20 speech/language clinicians was a large inner city clinic that serviced individuals of all ages. Ninety-one percent of the programs employed audiologists, the range was 0-12 (the 12 value was from the same inner city facility). While the mean was somewhat skewed to three audiologists-per-program, the mode statistic was one audiologist-per-program (Table 2).

Support staff such as social workers were employed by 64% of the programs but the remaining group contracted social workers when needed or requested them from the local educational system on an as-needed basis. Psychologists were employed by 89% of the programs and the remaining 11% contracted psychologists as-needed

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for evaluation, testing and counseling. Half the programs had rehabilitation/counselor specialists and 25 percent had interpreters as full-time staff (Table 2).

Ratios of administrators-to-students and administrators-to-classroom teachers were calculated with classroom supervisors excluded from the administrator category. The overall range of administrators-per-program was 2-20, the mean was seven and the mode was four. The administrators-to-students ratios ranged from 1-9, with a mean of four and a mode of three. Ratios for administrators-to-teachers ranged from 9-50, the mean was 18 with bimodal values at 12-24. In the latter instance, the median was 12 per program, which is a more meaningful value here.

All programs provided staff and faculty development options and inservice programs during the day or evenings. Fifty-two percent had or shared training grants with nearby colleges or universities and over 90% had some form of training program with a local or distant student training facility. Almost half of the programs had staff who published research papers and 57% of the programs collaborated with researchers at an affiliated university that used the program's deaf students as the experimental subjects.

Data on the sociologic composition of the teachers and administrators indicated that 38% of the programs averaged one handicapped teacher (other than hearing impairment) with a range of 0-6 per-program; handicapped teachers represented 3% of the classroom teacher group. Hearing impaired teachers were employed by 90% of the programs with a range of 0-25 per program. Overall, hearing impaired teachers constituted 20% of the classroom teacher group, with a median of five and a mode of seven teachers-per-program.

Seventy-one percent of the programs had at least one multicultural or minority teacher and one inner-city program had 90 persons (25%) on its faculty. While the latter program (N= 90) skewed the data (e.g. the next highest was 30 followed by 18, the overall minority/multicultural representation was 12% of the total teacher group. Of the 71%, over a third had 6% or fewer teachers who were multicultural or minority. While all the programs had a significant number of multicultural or minority hearing impaired students, and several had only multicultural or minority students, one-third of the programs had no multicultural or minority teachers on their staff.

4. Compliance with P.L. 99-457:
Sixty-two percent of these programs have their State Department of Education as the Lead Agency while 38% have their Department of Public Health as their Lead Agency. All the programs had "due process", local contract policies with timetables for treatment and payment, and multi-evaluations for the infants and their families prior to P.L. 99-457.

5. Early identification methodology and entrance criteria:
Child Find and Central Directories were used by all of the repr esented states . As all programs interfaced, directly or indirectly with health-care agencies, all programs had early identification, high-risk criteria; hence, a suspect case history prompts a high-risk warning with subsequent early intervention for the infants and their families. Only 11% use categorical labels in their programs.

The program's student eligibility criteria varied widely from severe hearing impairment to mild hearing impairment (with demonstrable developmental delay and/or language delay). Audiogram decibel level configurations were not considered critical and the

term "functional hearing disorder" was in widespread use. Demonstrable developmental and/or language delay was a significant program criterion for the program applicants.

6. Early intervention services and programs:

All the programs had an operational early intervention program including family home training, assessment of developmental levels, cognition, self-help, psycho social, language, general communication and speech skills. Early intervention was family-focused with "sensitivity-to-diversity" augmented via regular inservice family educational programs. All programs had specific criteria to monitor and track progress and review curricula noting the specified expected outcomes, duration of service plans and program follow-up. While parents were used as "case managers", this federal requirement generated strong adverse feelings.

7. Aural rehabilitation, speech and language development:

All programs had an aural rehabilitation segment regardless of the educational training model. As indicated earlier, all programs employed at least one speech/language clinician; over 91% employed at least one audiologist, the mean was 3 and the range was 1-12 audiologists per program. Over half of the programs ran audiology centers with sophisticated equipment for hearing aid evaluations. All programs featured assistive devices such as individual hearing aids, FM listening devices, group units, TDD's, etc. Several programs were assistive device centers.

Forty-five percent of the programs had at least one child with a cochlear implant and one program had twenty-five implanted children, the largest single child implant group in the country. These programs provided special training for the personnel with management and evaluation responsibilities to this group of students.

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8. Vocational training and occupational orientation:
Nearly 70% of the programs had a vocational or counseling training unit but the remaining programs referred their students, as needed, to community centers. Overall, greater than half attended a post-secondary college or a vocational training facility.

9. Technology, computers and high-technology programs:
To enhance educational training, 91% of the programs employed computers. Of this group, 30% utilized some form of multimedia, including an embedded 6% that utilized interactive video. Forty-eight percent of the programs employed computers for research. Two thirds of the programs had minimal software and hardware discretionary funds for computer and other technological equipment. Significant changes and interest in advanced technology were expanding in virtually all programs.

Discussion:
Recognizing the inherent statistical limitations associated with the sampling size, the diversity of the programs and their parameters, the data in this study were collated from 23 programs without statistical differentiation among the 23 representative schools for the deaf, LEA classes or clinics. Of the 23 units, there were only two clinics (130 students), four LEA classes (900 students) and the remaining seventeen programs were schools for the deaf (collective population, 3,866 students). Thus, the school for the deaf category represented 79% of the reported programs, clinics represented 2.7% and LEA classes rounded to 18%. Table 2 summarizes the parameter results:

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TABLE 2.

Summary of Statistical Information

1. General Program Information

Private School	60%
Public School	40%
Public and Private	13%
Total Communication	70%
Aural Rehabilitation	100%
Sign Language	54%
Infant/parent programs	100%
Multi-district	78%
Collaboratives	57%
Satellites	74%

2. Student Data

Students enrolled	213 (mean)
Class size	6 (mean)
Day class	100%
Residential	41%
Sex ratio	50/50 (mostly)
Multicultural	100% (programs)
Early intervention	100% (programs)
Family guidance	100% (programs)

3. Staff, Faculty, Administrators

Student/Teacher ratio	1:5.6
Student/Aide ratio	1:18.5
Administrator /Student ratio	1:35.5
Administrator/Teacher ratio	1:6.
Administrator/Program	1:6.0
Handicapped Teachers	38% (programs)
Handicapped Teachers	2% (teachers)
Deaf Teachers	90% (programs
Deaf Teachers	3% (teachers)
Multicultural Teachers	71& (programs)
Multicultural Teachers	12 (teachers)
Sp/l pathologist	2 (mode); 5 (mean)
Audiologist	1 (mode); 3 (mean)
Social Worker	1; 64% (programs
Psychologist	1; 89% (programs)

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Rehab/Counselor	1; 50% (programs)
Interpreter	1; 25% (programs)
Staff development	100%
Inservice	100%
Grants	52%
Student training	90%

4. Preparation for P.L. 99-457

Lead Agency DOE	62%
Lead Agency PH	100%
Child Find	100%
Central Directory	100%
Categorical labels	11%

5. Aural Rehab, Vocational Training, Technology

Assistive Devices	100%
Cochlear Implants	45%
Computers	90%

From a statistical perspective, the results of this study largely reflect the activities at public and private schools for the deaf. For example, the overall average number of hearing impaired students per school was 213; if the data were assessed for the schools for the deaf category exclusively, the mean changed slightly to 227 students per school. Basically, these data provide a sample profile deaf education in this country, relative to P.L. 99-457.

The most striking new universal component is the infant/parent segment. This segment included a dynamic interface with other agencies, home visitations, evening classes, inservice and continuing education formats, sign language classes and courting single parents, especially fathers. Most programs hired early childhood specialists to supervise and direct the activities. The adoption of an infant/parent segment often required additional space, support staff and retraining of other key personnel.

Another notable trend in deaf education, is the clear and forceful movement toward ASL as the preferred focal language. Total Communication, as it is connoted today, is an ambiguous label and subsequently a disappointment to many program representatives. Some interviewees were unable to classify their own programs. Despite the growing trend toward ASL, there was a universal commitment to continue the aural rehabilitation segments, as needed.

The statistical demographics of deaf children remained about the same as those reported by Schildroth and Hotto (1991). Several interesting demographics warrant being highlighted. One is the large number of multicultural and minority children in the programs and several programs had *only* multicultural or minority children. The imposing, corresponding dearth of multicultural or

minority teachers or administrators needs to be further addressed by the training universities and federal agencies (Cohen, Fischgrund and Redding, 1990).

Eligibility for admission into the programs was another interesting parameter. Auditory hearing levels, as depicted by classical pure tone audiograms and other audiometric tests, played a subordinate role in many facilities. While most of the children had severe-to-profound hearing threshold levels, many children were admitted who had mild-to-moderate hearing threshold levels if they evidenced learning, language, developmental or social delays. Several directors expressed dismay about these "borderline" hearing impaired children, particularly when sign language was the primary communication mode in that educational environment.

One questionable parameter was the term "multihandicapped". For example, several program directors perceived a prelingual, severely hearing impaired child with a concomitant language deficit or learning delay as "multihandicapped". For these administrators, the designation was clear; their deaf students had functional language, learning and general communication problems that impacted on their social and developmental integrity.

A few other items should be noted: (1) the AAD age classification did not serve the needs of many program directors who preferred a more detailed breakdown; (2) all programs had at least one ASHA certified speech/language teacher and one audiologist regardless of the teaching mode; (3) some programs employed their own social workers, psychologists, interpreters and rehabilitation counselors but others employed collaborative agencies and employed their services on a pay-as-you-go basis for cost effectiveness.

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As might be predicted, the ratios of program administrators-to-teachers and administrators-to-students favored the smaller programs. The mean statistic of three administrators-per-program and the 1:18 ratio of administrators-to-teachers excluded the array of supervisors who often had dual roles and served as teachers with their supervision roles imbedded into their daily activities.

Conclusions:

1. All states and programs complied with the specifications of P.L. 99-457. At considerable expense, parent/infant components were launched, including staff development, added space and a network of state and local interagency alliances and collaboratives.

2. Logistic ratios of students-to-staff-to-faculty reflected similar ratios to those reported in the past.

3. Programs reported more minority and multicultural students than reported in the past.

4. Teacher, administrator and staff personnel lacked proportional ethnic representation relative to student composition for the multicultural/minority, deaf and handicapped staff parameters.

5. There was a growing use of ASL as the instructional language mode for communication.

6. Hearing threshold levels of children at schools for the deaf showed a viable movement toward admitting children with mild-to-moderate or moderate-to-severe hearing threshold levels when they had other developmental problems.

7. Hearing impaired students were often classified multihandicapped because of concomitant language and other limitations.

8. The prevalence of cochlear implanted children is increasing rapidly and this population requires special educational and family management, including staff-development training.

9. All programs employed at least one speech/language pathologist, one audiologist and contained aural rehabilitation and assistive-device units.

10. Technology and computers rated high in priority for teaching, research and general use.

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